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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/402,112	02/18/2000	SHOJIRO KAWAKAMI	FUK-63	5560

22855 7590 06/03/2002

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EXAMINER

VERSTEEG, STEVEN H

ART UNIT	PAPER NUMBER
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1753

20

DATE MAILED: 06/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/402,112		KAWAKAMI ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Steven H VerSteeg		1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 April 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 5 and 6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5 and 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other:  |

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## DETAILED ACTION

### *Claim Rejections - 35 USC §§ 102 & 103*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5 and 6 are rejected under 35 U.S.C. 102(a) as being anticipated by *Fabrication of submicrometre 3D periodic structures composed of Si/SiO<sub>2</sub>* by Kawakami.

4. For claim 5, Applicant requires a three dimensional periodic structure that is fabricated by sequentially and periodically forming at least two kinds of layers including a layer mainly of SiO<sub>2</sub> and a layer mainly of Si on a substrate having a two-dimensionally periodically recessed or projecting portions. It is formed by carrying out sputtering and sputter etching alternatively or simultaneously at least in a part of the forming while keeping a pattern of the recessed or projecting portions.

5. For claim 6, Applicant claims a method of fabricating a three-dimensional periodic structure by sequentially and periodically forming at least two kinds of layers including a layer

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mainly of SiO<sub>2</sub> and a layer mainly of Si on a substrate having a two-dimensionally periodically recessed or projecting portions. It is formed by carrying out sputtering and sputter etching alternatively or simultaneously at least in a part of the forming while keeping a pattern of the recessed or projecting portions.

6. Kawakami discloses a 3D structure (title). The structure is made by alternately depositing silicon dioxide and silicon onto the substrate (page 50). The layers are formed by bias sputtering which involves sputter deposition and sputter etching occurring simultaneously (page 50). The structures have two-dimensionally periodically recessed or projecting portions (Figure 3). Therefore, Kawakami discloses the structure of claim 5 (the 3D structure with the alternating layers of silicon and silicon dioxide) and the method of making the 3D structure claimed in claim 6 (and by way of a product by process in claim 5).

7. Claim 5 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 5,600,483 to Fan *et al.* (Fan).

8. Claim 5 is described above. Fan discloses a three dimensionally structure (title). The structure comprises alternate layers of silicon and silicon dioxide (col. 3, l. 17-26). The layers have two-dimensionally periodically recessed or projecting portions (Figure 1). The method of making the structure involves sputter depositing the Si layer and etching it and then, depositing the silicon dioxide without etching. Thus, the method of making the structure is different than the method utilized in the product-by-process method of claim 5. Because the resulting structure appears to be the same as claimed by Applicant, it is obvious, if not inherent, that the same structure claimed by Applicant in claim 5 is present in Fan.

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*Response to Amendment*

9. The new matter objection to the specification presented in the office action mailed October 9, 2001 is withdrawn in light of the amendment.
10. The 102(a) rejection of claims 5 and 6 over Kawakami presented in the office action mailed October 9, 2001 stands.
11. The 102(b)/103(a) rejection of claim 5 over Fan presented in the office action mailed October 9, 2001 stands.

*Response to Arguments*

12. Applicant's arguments filed April 8, 2002 have been fully considered but they are not persuasive.
13. Applicant has first argued that Kawakami is not prior art against the instant invention because Applicant believes that they have perfected priority. The examiner disagrees. Applicant has merely filed a declaration signed by Satoshi Hoshikoshi in which Satoshi Hoshikoshi recites certain elements and states that they are present in the 9/114951 application. Such a declaration does not perfect priority. In order to properly perfect priority, Applicant must file a translated copy of the entire priority document according to 37 C.F.R. § 1.55(a)(4), M.P.E.P. § 201.13, and 35 U.S.C. § 119(b)(3). Determining whether 9/114951 contains the limitations sufficient to render the Kawakami reference inapplicable is a decision for the examiner, not Satoshi Hoshikoshi. Therefore, the declaration is insufficient and priority has not been perfected and the rejection over Kawakami stands.

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14. Applicant then argues that Fan is not applicable because the product in Fan is made by a different process than that claimed by Applicant. Applicant is correct in that the process is different. However, the product of Fan appears to be the same as the product claimed by Applicant even though a different production method is utilized. Applicant must show that the products are different, not that the process of making them is different. Claim 5, as a product, consists of a three-dimensional periodic structure with at least two kinds of layers including a layer mainly comprising silicon dioxide and a layer mainly comprising silicon on a substrate having two-dimensionally periodically recessed or projecting portions. Fan discloses a three dimensionally structure (title). The structure comprises alternate layers of silicon and silicon dioxide (col. 3, l. 17-26). The layers have two-dimensionally periodically recessed or projecting portions (Figure 1). The structure of Fan is exactly the same as the structure claimed by Applicant.

### *Conclusion*

In the event that papers are missing from this communication, please contact the Customer Service Center for Technology Center 1700 at (703) 306-5665.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H VerSteeg whose telephone number is (703) 305-4473. The examiner can normally be reached on Mon - Thurs (7:30 AM - 5:00 PM) & alternate Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X Nguyen can be reached on (703) 308-3322. The fax phone numbers for the


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organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Steven H VerSteeg  
Examiner  
Art Unit 1753

shv  
May 30, 2002